**Power BI Assignment 2**

1. Explain the advantages of Natural Queries in Power Bi with an example?

Ans:

Natural Language Queries (NLQ) is a feature in Power BI that allows users to type a question or statement in natural language, and the system will interpret and generate the appropriate visualization or answer.

The advantages of Natural Language Queries in Power BI include:

1. Ease of use: NLQ allows users to ask questions in plain language, without needing to know the underlying data model, query language or syntax, which makes it easier for non-technical users to create reports and dashboards.
2. Faster insights: NLQ enables users to quickly get answers to their questions, without having to spend time building complex reports or dashboards. This makes it ideal for situations where time is of the essence, or where users need to quickly explore data and identify insights.
3. Increased adoption: NLQ can increase the adoption of BI tools by enabling business users to access and analyze data themselves, without relying on technical or IT resources. This can result in greater engagement and more effective decision-making across the organization.

For example, a user can ask the following question in natural language: "What was our total sales revenue last quarter?" Power BI would then interpret the question and generate a visualization that displays the total sales revenue for the specified time period. The user can then refine the question, such as "Show me the revenue by product category", and Power BI would generate a visualization that displays the revenue by product category for the specified time period. This way, the user can get quick answers to their questions and easily explore the data to uncover insights.

1. Explain Web Front End(WFE) cluster from Power BI Service Architecture?

Ans:

In the Power BI Service architecture, the Web Front End (WFE) cluster is a group of servers that handle user requests and serve as the entry point for all external traffic.

The WFE cluster includes multiple servers that are load balanced to ensure high availability and scalability. When a user accesses the Power BI Service, their request is first directed to the WFE cluster, which determines the appropriate backend server to handle the request based on factors such as user location and server load.

The WFE cluster also handles other tasks such as user authentication, authorization, and encryption of data in transit to ensure secure communication between the user and the Power BI Service.

In addition, the WFE cluster is responsible for hosting and serving web content, including dashboards, reports, and other visualizations, to users. It also enables users to interact with the content, such as applying filters, drilling down into data, and exporting data to other applications.

Overall, the WFE cluster is a critical component of the Power BI Service architecture, as it provides a secure and scalable platform for users to access and interact with data and analytics.

1. Explain Back End cluster from Power BI Service Architecture?

Ans:

In the Power BI Service architecture, the Back End cluster is a group of servers that provide the data processing and storage capabilities needed to support the Power BI Service.

The Back End cluster includes multiple servers that work together to handle various tasks, such as data ingestion, transformation, and storage. It is responsible for retrieving data from various sources, including on-premises and cloud-based data sources, and making it available for analysis and visualization in the Power BI Service.

The Back End cluster also includes multiple specialized services, such as the data refresh service, which refreshes data on a schedule or on demand, and the query service, which performs queries and calculations on data in real-time.

Other services in the Back End cluster include the metadata service, which manages the metadata associated with data sources and reports, and the security service, which manages user access and authentication.

The Back End cluster is also responsible for ensuring data security and privacy, by enforcing security policies and using encryption to protect sensitive data. It also provides data redundancy and disaster recovery capabilities, to ensure that data is not lost in the event of hardware or software failures.

Overall, the Back End cluster is a critical component of the Power BI Service architecture, as it provides the data processing and storage capabilities needed to support the Power BI Service and enable users to analyze and visualize their data effectively.

1. What ASP.NET component does in Power BI Service Architecture?

Ans:

In the Power BI Service Architecture, the ASP.NET component is a web application framework used to build and deploy the Power BI Service.

ASP.NET is a server-side framework that provides a variety of features and tools that simplify web application development and deployment. In the context of the Power BI Service, ASP.NET provides a platform for building and deploying the web-based front-end user interface, as well as for handling various server-side tasks such as data processing, security, and user authentication.

Some of the key capabilities of ASP.NET that are relevant to the Power BI Service architecture include:

1. Web application development: ASP.NET provides a framework for building and deploying web-based applications, including the Power BI Service.
2. User authentication and authorization: ASP.NET includes built-in features for managing user authentication and authorization, which are critical to ensuring secure access to the Power BI Service.
3. Security and encryption: ASP.NET provides a range of security features, such as SSL/TLS encryption, that help to ensure data security and privacy.
4. Performance and scalability: ASP.NET is designed to be highly performant and scalable, which is essential for supporting the large volumes of data and user traffic that are typical of the Power BI Service.

Overall, the ASP.NET component is a critical part of the Power BI Service architecture, as it provides the framework and tools needed to build and deploy a scalable and secure web-based analytics platform.

1. Compare Microsoft Excel and PowerBi Desktop on the following features:

Data import

Data transformation

Modelling

Reporting

Server Deployment

Convert Models

Cost

Ans:

Here is a comparison of Microsoft Excel and Power BI Desktop on several key features:

1. Data import: Excel allows users to import data from a variety of sources, including CSV files, text files, databases, and web sources. Power BI Desktop also supports importing data from many sources, including Excel files, CSV files, databases, and cloud-based sources such as Azure and Google Analytics. However, Power BI Desktop offers more advanced data import options, such as the ability to connect to live data sources and refresh data on a schedule.
2. Data transformation: Excel offers basic data transformation capabilities, such as filtering, sorting, and pivoting data. Power BI Desktop offers more advanced data transformation features, including the ability to merge and append data from different sources, transform data using advanced functions and expressions, and create calculated columns and measures.
3. Modeling: Excel allows users to create basic data models using pivot tables and charts. Power BI Desktop provides more advanced data modeling capabilities, including the ability to create relationships between tables, define hierarchies and calculated tables, and create advanced DAX formulas to manipulate and analyze data.
4. Reporting: Excel offers a range of reporting features, such as charts, tables, and pivot tables. Power BI Desktop provides more advanced reporting capabilities, such as the ability to create interactive visualizations, drill-down reports, and custom dashboards.
5. Server deployment: Excel files can be shared via email, SharePoint, or OneDrive, but it lacks a centralized server deployment option. Power BI Desktop files can be deployed to the Power BI Service, a centralized platform that provides secure sharing, collaboration, and data visualization capabilities.
6. Convert models: Power BI Desktop models can be easily converted to Excel data models, but the reverse is not possible.
7. Cost: Excel is available as part of the Microsoft Office suite, while Power BI Desktop is available as a free download from the Microsoft website. However, to fully utilize the Power BI Service for sharing and collaboration, a paid subscription to the service is required.

Overall, while Excel and Power BI Desktop share some similarities in terms of data import and reporting, Power BI Desktop provides more advanced data transformation, modeling, and server deployment capabilities. However, Excel remains a powerful tool for ad-hoc analysis and reporting, and is more widely used and familiar to many users.

1. List 20 data sources supported by Power Bi desktop.

Ans:

Here are 20 data sources that are supported by Power BI Desktop:

* Excel files
* CSV files
* Text files
* XML files
* JSON files
* Access databases
* SQL Server databases
* MySQL databases
* Oracle databases
* IBM DB2 databases
* PostgreSQL databases
* Teradata databases
* Amazon Redshift
* Salesforce
* Google Analytics
* Adobe Analytics
* SharePoint Lists
* Hadoop HDFS
* Apache Spark
* O Data feeds

This is not an exhaustive list, as Power BI Desktop supports many other data sources as well, including cloud-based services such as Azure SQL Database, Azure Blob Storage, and Google BigQuery, among others.